

CLAIMS

What is claimed is:

5 1. A system for monitoring the performance of a hydrocarbon reformer, comprising:

- a) a quantitative hydrocarbon sensor; and
- b) means for providing a sample of the reformate output of said reformer to said sensor.

10 2. A system in accordance with Claim 1 wherein said sample providing is continuous.

15 3. A system in accordance with Claim 1 wherein said hydrocarbon is methane.

4. A system in accordance with Claim 1 wherein said hydrocarbon sensor is selected from the group consisting of catalytic, optical, and solid oxide electrode.

20 5. A system in accordance with Claim 1 further comprising means for providing air to said sensor.

6. A system in accordance with Claim 5 further comprising means for combining said air and said reformate sample in a fixed and predetermined ratio.

25 7. A system in accordance with Claim 6 wherein said means for combining includes at least one positive displacement pump.

8. A system in accordance with Claim 6 wherein said means for combining includes a double-headed positive displacement pump.

9. A system in accordance with Claim 1 wherein said reformer is a source
5 of gaseous fuel for a fuel cell.

10. A system in accordance with Claim 1 further comprising means for displaying and alarming the methane content of said reformat sample.

11. A system in accordance with Claim 1 further comprising means for shutting down said fuel cell.

12. A fuel cell system, comprising:

a) a fuel cell stack;

15 b) a hydrocarbon reformer for supplying gaseous fuel in the form of reformat to said stack;

c) a quantitative hydrocarbon sensor for measuring hydrocarbon content of said reformat; and

b) means for providing a sample of said reformat to said sensor.